REMARKS

The Office Action dated June 15, 2009, has been received and carefully noted. The following remarks are submitted as a full and complete response thereto.

Claims 1-18 are currently pending in the application, of which claims 1, 10, 14, and 18 are independent claims.

In view of the following remarks, Applicant respectfully requests reconsideration and timely withdrawal of the pending rejections to the claims for the reasons discussed below.

Double Patenting Rejection

The Office Action provisionally rejected claims 1-17 under the judicially created doctrine of non-statutory obviousness-type double patenting over claims 1-19 of U.S. co-pending Application No. 11/630,159. The double patenting rejections are provisional because the conflicting claims have not yet been issued. The provisional rejections are moot because the co-pending application is still pending and the scope of the claims involved may change before any of these patent applications issue. Withdrawal of the rejections as moot is respectfully requested.

Claim Rejections under 35 U.S.C. §102(e)

The Office Action rejected claims 1-18 under 35 U.S.C. §102(e) as allegedly anticipated by Liu (U.S. Publication No. 2004/0190467). The Office alleged that Liu discloses or suggests every claim feature recited in claims 1-18. Applicant respectfully submits that the claims recite subject matter that is neither disclosed nor suggested in Liu.

Claim 1, upon which claims 2-9 depend, recites a method. The method includes receiving beacon frames at beacon intervals, extracting beacon interval information from a beacon frame, and monitoring data traffic of a terminal. The method further includes defining at least one parameter describing a data traffic pattern of the terminal, and dynamically controlling a power state of the terminal by the terminal, on the basis of the at least one parameter describing the data traffic pattern of the terminal and the beacon interval information, so that the terminal is maintained in one of at least two power states. The at least two power states include an active state and a power save state.

Claim 10, upon which claims 11-13 depend, recites an apparatus. The apparatus includes a receiver configured to receive beacon frames at beacon intervals, and an extractor configured to extract beacon interval information from a beacon frame. The apparatus further includes a traffic monitor configured to monitor data traffic of a terminal and to define at least one parameter describing a data traffic pattern of the terminal, and a controller configured to manage power for dynamically controlling a power state of the terminal on the basis of the at least one parameter describing the data traffic pattern of the terminal and the beacon interval information to maintain the terminal

in one of at least two power states. The at least two power states include an active state and a power save state.

Claim 14, upon which claims 15-17 depend, recites a system. The system includes at least one system entity configured to broadcast beacon frames at beacon intervals, and at least one wireless terminal configured to extract beacon interval information from a beacon frame. The at least one wireless terminal includes a traffic monitor configured to monitor data traffic of the at least one wireless terminal and to define at least one parameter describing a data traffic pattern of the terminal. The at least one wireless terminal further includes a controller configured to dynamically control a power state of the at least one wireless terminal on the basis of the at least one parameter describing the data traffic pattern of the terminal and the beacon interval information to maintain the at least one wireless terminal in one of at least two power states. The at least two power states include an active state and a power save state.

Claim 18 recites an apparatus. The apparatus includes receiving means for receiving beacon frames at beacon intervals, and extracting means for extracting beacon interval information from a beacon frame. The apparatus further includes traffic monitoring means for monitoring data traffic of a terminal and to define at least one parameter describing a data traffic pattern of the terminal, and controlling means for managing power for dynamically controlling a power state of the terminal by the terminal on the basis of the at least one parameter describing the data traffic pattern of the terminal

and the beacon interval information to maintain the terminal in one of at least two power states. The at least two power states comprise an active state and a power save state.

Applicant respectfully submits that certain embodiments of the invention provide non-obvious advantages. Specifically, certain embodiments of the present invention relate to at least one parameter describing a data traffic pattern of a terminal used with beacon interval information to dynamically control a power state of the terminal **by the terminal**. As a result, a power save mode can more efficiently utilize silent periods during which no transmission or reception occurs at the terminal.

As will be discussed below, Liu fails to disclose or suggest each and every element recited in claims 1-18, and therefore fails to provide the advantages and the features discussed above.

Liu is directed to a power saving mechanism for wireless LANs via a schedule information vector. Liu describes scheduling data transmissions of stations with a Schedule Information Vector (SIV) protocol. In the SIV protocol, an access point (AP) transmits a SIV frame that includes scheduled wake-up times for the stations. The scheduled wake-up times may be adjusted on the basis of the network traffic. Liu further teaches that a power saving station needs to wake up periodically for the beacon and the SIV frames. After the power saving station has received the schedule in a SIV frame from the AP, the power saving station decides whether to go back to sleep or to continue listening for transmissions (Liu, paragraphs [0025]-[0032]).

Applicant respectfully submits that Liu fails to disclose each and every element recited in claims 1-18. In particular, Liu fails to disclose or suggest, at least, "dynamically controlling a power state of the terminal by the terminal, on the basis of said at least one parameter describing the data traffic pattern of the terminal and the beacon interval information, so that the terminal is maintained in one of at least two power states," as recited in claim 1 (emphasis added), and similarly recited in claims 10, 14, and 18.

As has been discussed in Applicant's previous responses, claims 1, 10, 14, and 18 recite, in part, that the dynamic controlling of the power state of the terminal is performed **by the terminal**. The Office, in the Office Action dated March 5, 2009, the Advisory Action dated May 13, 2009, and now in the present Office Action, fails to appreciate these features, citing a "controller 28," that is associated with a **network** element, of Liu, as described in paragraphs [0045] and [0046] (*see* Office Action on pages 2-3 and 6), to allege that Liu describes the elements **of the terminal**, as recited in the pending claims.

On page 3, the Office Action indicated that the "Examiner still believes that element 28 is the controlling element which his part of element 23 of Fig. 2 that includes element 26 a (MAC) and controls the operation of the device, and/or HCF which controls the operation of the terminal or the AP as depicted in Fig. 3." Applicant notes that this argument fails to demonstrate that **the terminal** dynamically controls the power state of the terminal, as recited in the pending claims.

As has been discussed in Applicant's previous responses, the Office cited **non-terminal** elements to allege that Liu describes the features **for the terminal** recited in the pending claims.

Applicant notes that Liu describes element "28" as a "network layer," rather than a "controller." The network layer 28 transmits and receives data between the AP and a terminal. Contrary to the Office Action's allegations, Liu fails to describe or suggest that the network layer 28 is a controller "dynamically controlling a power state of the terminal." The Office alleged that it has taken the broadest reasonable interpretation of the claimed subject matter, however, the Office Action failed to demonstrate that Liu describes "dynamically controlling a power state of the terminal by the terminal," as recited in the pending claims (emphasis added).

The Office Action has repeatedly directed Applicant to the network layer 28, indicating that the network layer 28 is part of element 23, to substantiate its allegations that Liu describes the aforementioned claim features. Applicant notes that Liu describes element 23 as a series of protocol layers having a physical layer PHY 24, a data link layer 26, and a NETWORK layer 28. The data link layer 26 includes a medium access control MAC 26a sublayer and a logical link control LLC 26b sublayer (Liu, paragraph [0014]). Applicant further notes that Liu, as described in paragraphs [0014]-[0024], describes that the series of protocol layers 23 that include the NETWORK layer 28 are associated with a network, *e.g.*, a WLAN, not a terminal (*see* Figure 2). One of ordinary skill in the

relevant art would have clearly understood that network layer 28 is a **non-terminal** element.

The Office Action failed to appreciate that the pending claims recite that a power state of the terminal is dynamically controlled **by the terminal**. The Office Action merely cited to element 28 to allege that a "controller" was described in Liu. The Office Action failed to demonstrate that the NETWORK layer 28 is a **terminal** element, and therefore failed to demonstrate that Liu describes each and every element recited in the pending claims.

Furthermore, a review of paragraphs [0045] and [0046] of Liu demonstrates that Liu fails to describe or suggest the features recited in the pending claims. In particular, Liu, in paragraphs [0045] and [0046], describes that "the SIV frame protocol *of the wireless network* may be dynamically adjusted to provide the scheduled wake-up times of the stations .... these dynamic adjustments may be made based on one or a combination of network traffic, traffic buffering times, etc."

The Office Action alleged that the parameters, such as the station identifiers and the scheduled wake-up times in the SIV frame, correspond with the features for the "at least one parameter describing a data traffic pattern of the terminal," as recited in claim 1, and similarly recited in claims 10 and 14. Rather, Liu describes that the parameters, such as station identifiers or scheduled wake-up times in the SIV frame, as shown in FIG. 5B, identify each station and the time instants each of the stations is scheduled to transmit a

transmission on either an uplink or downlink Adjustments to scheduling only consider *network traffic in the access point.*

The Office Action further alleged that the description in Liu for the "adjusted to schedule wake-up time" corresponds to the features for "dynamically controlling," as recited in claim 1, and similarly recited in claims 10, 14, and 18. Rather, Liu describes that the stations decide on entering the sleep mode or remaining awake, based on the length of the schedule (Liu, paragraph [0084]). Thus, the schedule received in the SIV frame fails to control the power state of the stations. Further, the station needs to make separate decisions on entering the sleep mode or remaining awake. The information on the wake-up time of the station and the length of the schedule may be used for making this decision. Therefore, the sending of the SIV frame *from the AP*, as described in Liu, fails to describe or suggest, at least, "dynamically controlling the power station of the terminal by the terminal," as recited in claim 1 (emphasis added), and similarly recited in claims 10, 14, and 18.

In fact, Liu actually teaches away from the features recited in claims 1, 10, and 14. Liu describes that the wake-up times cannot be used for controlling the power state of a station. In paragraph [0084], Liu teaches that there may not be any net power savings benefit for a station entering the sleep state if the station's scheduled transmission will follow the SIV frame in a short time. The station entering and leaving the sleep state on the basis of the wake-up times in the SIV frame may end up with a high power consumption than if it would not enter the sleep state. Therefore, one of ordinary skill in

the art would have understood that the wake-up schedule in the SIV frame is unsuitable for dynamically controlling the power state of the terminal **by the terminal**.

Hence, Liu describes that the scheduling of wake-up times is performed **in the access point**, whereas certain embodiments of the present invention describe that the scheduling of transmissions is performed **by the terminal**. Furthermore, the SIV frame, as described in Liu, only provides scheduling on the basis *of the network traffic*. Therefore, one of ordinary skill in the art would have clearly understood that Liu fails to teach control of the power state of the terminal **by the terminal**. Therefore, Liu fails to describe or suggest, at least, "dynamically controlling a power state of the terminal by the terminal, on the basis of said at least one parameter describing the data traffic pattern of the terminal and the beacon interval information, so that the terminal is maintained in one of at least two power states," as recited in claim 1 (emphasis added), and similarly recited in claims 10, 14, and 18.

Claims 2-9 depend from claim 1. Claims 11-13 depend from claim 10. Claims 15-17 depend from claim 14. Accordingly, claims 2-9, 11-13, and 15-17 should be allowable for at least their dependency upon an allowable base claim, and for the specific limitations recited therein.

Therefore, Applicant respectfully requests withdrawal of the rejections of claims 1-18 under 35 U.S.C. §102(e) and respectfully submits that claims 1, 10, 14, and 18, and the claims that depend therefrom, are in condition for allowance.

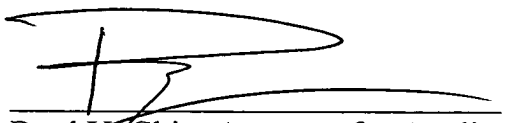
CONCLUSION

In conclusion, Applicant respectfully submits that Liu fails to describe or suggest each and every element recited in claims 1-18. The distinctions previously noted are more than sufficient to render the claimed invention unanticipated. It is therefore respectfully requested that all of claims 1-18 be allowed, and this present application be passed to issuance.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, Applicant's undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, Applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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